

US011314396B2

(12) United States Patent Olson et al.

(54) SELECTING A TEXT INPUT FIELD USING EYE GAZE

(71) Applicant: Apple Inc., Cupertino, CA (US)

(72) Inventors: Earl M. Olson, Santa Clara, CA (US); Pol Pla I. Conesa, Belmont, CA (US);

Aaron P. Thompson, San Francisco,

CA (US)

(73) Assignee: Apple Inc., Cupertino, CA (US)

(*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

(21) Appl. No.: 17/052,081

(22) PCT Filed: Apr. 24, 2019

(86) PCT No.: PCT/US2019/028980

§ 371 (c)(1),

(2) Date: Oct. 30, 2020

(87) PCT Pub. No.: WO2019/217081

PCT Pub. Date: Nov. 14, 2019

(65) Prior Publication Data

US 2021/0240331 A1 Aug. 5, 2021

Related U.S. Application Data

- (60) Provisional application No. 62/669,290, filed on May 9, 2018.
- (51) **Int. Cl. G06F 3/048** (2013.01) **G06F 3/04842** (2022.01)
 (Continued)

(10) Patent No.: US 11,314,396 B2

(45) **Date of Patent:** Apr. 26, 2022

(58) Field of Classification Search

CPC G06F 3/04842; G06F 3/013; G06F 3/0487; G06F 3/048

See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

8,408,706 B2 4/2013 Yahav 10,248,399 B2 4/2019 Yoon (Continued)

FOREIGN PATENT DOCUMENTS

CN 103460256 A 12/2013 CN 104516497 A 4/2015 (Continued)

OTHER PUBLICATIONS

Non-Final Office Action received for U.S. Appl. No. 16/828,857, dated Feb. 17, 2021, 12 pages.

(Continued)

Primary Examiner — Jeanette J Parker (74) Attorney, Agent, or Firm — Dentons US LLP

(57) ABSTRACT

In an exemplary process for selecting a text input field using an eye gaze, a graphical object including the text input field is displayed. The text input field is associated with one or more respective locations on one or more displays. Characteristics of an eye gaze are determined using gaze sensors, and a gaze location is determined using the characteristics. Input is received from an input device corresponding to one or more text characters. If the gaze location corresponds to the one or more respective locations, then the one or more text characters are displayed in the text input field. If the gaze location does not correspond to the one or more respective locations, then the one or more respective locations, then the one or more text characters are not displayed in the text input field.

27 Claims, 10 Drawing Sheets

